

Severe case of disseminated hydatidosis

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ABSTRACT. **Introduction** Hydatidosis is a severe zoonosis, human contamination occurring by the ingestion of foods contaminated by dog faeces containing *Echinococcus granulosus* (*E. granulosus*) eggs. Peritoneal hydatidosis is one of the serious complications of the disease, often associated with another visceral location, it affects all ages and all segments of the peritoneal cavity. **Materials and methods:** We present the case of a 34 years old male, admitted in Saint Spiridon Emergency Hospital, Surgery Clinic I, Iași, România with severe [disseminated hydatidosis](#). **Result:** Our patient presented diffuse pain in the superior abdomen, without any other complains. The biochemical tests were normal, except the eosinophils. The ultrasound and the computer tomography revealed the presence of multiple cystic tumors in the liver, peritoneum and in the spleen, with imagistic appearance specific for hydatid cyst. A surgery team was formed to extract the multiple cysts, by laparotomy. The histopathological examination confirmed the diagnosis of multiple hydatid cysts. **Conclusion:** Peritoneal hydatidosis is a rare but serious complication of hydatid disease. The positive diagnosis is based on epidemiological, clinical, and paraclinical arguments represented essentially by CT scan. Early diagnosis and treatment of primary sites as well as optimal surgical management of peritoneal hydatidosis determine the prognosis.

Key words: Hydatid cyst, *Echinococcus granulosus*, disseminated hydatidosis, peritoneal hydatidosis

Introduction

Hydatidosis is a severe zoonosis, that occurs in both developing and developed countries, and is recognized as a major public health problem. The life cycle of *E. granulosus* involves a definitive host (dogs and other canids) for the adult *E. granulosus* that resides in the intestine, and an intermediate host (sheep and other herbivores) for the tissue-invading metacestode (larval) stage. Humans are only incidentally infected. On ingestion of *E. granulosus* eggs, hydatid cysts are formed mostly in liver and lungs, and occasionally in other organs of human body, which are considered as uncommon sites of localization of hydatid cysts [1]. The liver is the most common location of the hydatid cyst, commonly occurring in 55-70% of cases, followed by the lung (18-35%). The two organs can be affected simultaneously in about 5-

13% of cases. Incidence of unusual sites is about 8-10%. Incidence of hidatidosis involving the spleen, kidney, peritoneal cavity, skin and muscles is about 2% each and incidence of the

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heart, brain, vertebral column, ovaries, pancreas, gallbladder, thyroid gland, breast, and bones involvement is about 1% each [2].

Peritoneal hydatidosis is one of the serious complications of the disease, often associated with another visceral location, it affects all ages and all segments of the peritoneal cavity. It represents about 5–16% of all hydatid cyst locations [3].

The useful diagnostic methods for human hydatidosis includes ultrasonography, computerized tomography and magnetic resonance imaging [4].

Medical treatment with albendazole demonstrated efficacy is useful in the management of patients with hydatid cysts in liver and lungs. Pre-surgical chemotherapy of *E. granulosus* infections reduces the size and number of viable protoscolices [5]. The current surgical methods of treatment of human hydatidosis includes classic abord and laparoscopic, and percutaneous drainage (consisting of puncture, aspiration, injection and re-aspiration); these methods are mainly helpful for liver cysts. The alternative method for the treatment of muscle-, spleen-or kidney-cysts includes percutaneous drainage without re-aspiration [6].

Case report

We present the case of a 34 years old male, a shepherd by profession, was admitted in our clinic with progressively increasing abdominal distension evolving over 6 months, associated with dull abdominal pain. There was no history of change in bowel habits, vomiting, or weight loss. Physical examination showed no remarkable findings except for abdominal distention. There was no lymphadenopathy. The hematological tests were normal, with a slight increase in the eosinophil count, with a number of 840/ μ L (normal value of 500/ μ L), and percentage of 12.4 % (normal value of 5%). The thoracic and abdominal computer tomography was performed, that revealed (Fig. 1):

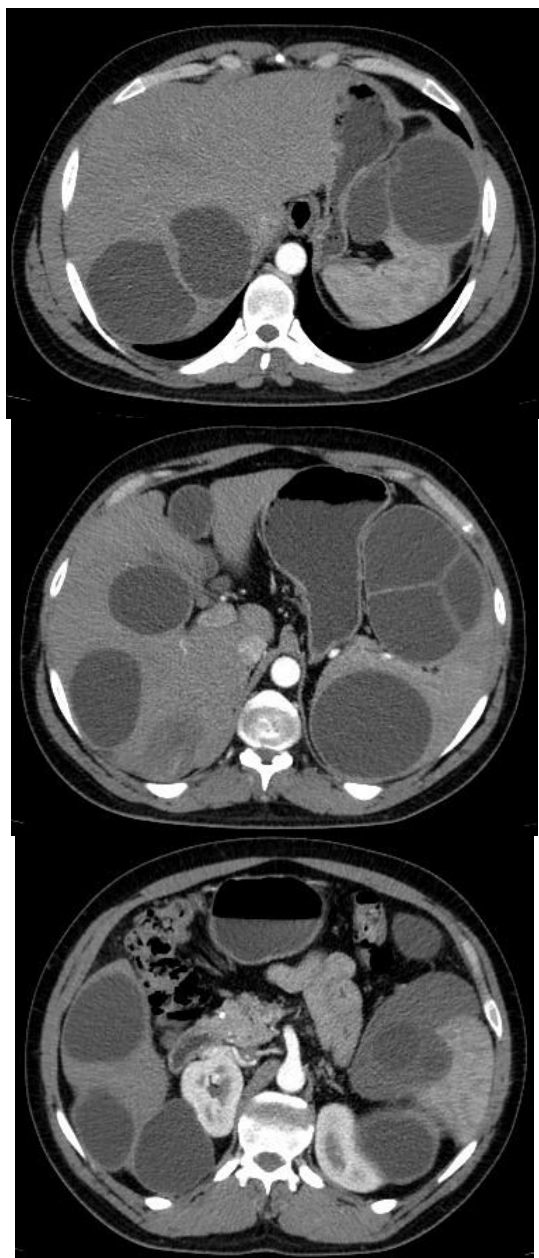
- liver with increased dimensions, antero-posterior diameter of the right lobe of 198 mm, the left lobe of 92 mm, presents at the level of the right lobe multiple cystic lesions with a thin wall without a contrast

outlet with the following locations and sizes:

- segment IVa- cysts of 17 mm diameter and 56/40/40 mm, protruding in the interlobar fissure;
- segment V- a cyst of 101/64/67 mm, protruding from the contour, in relation to the hepatic angle of the colon, which it imprints, and another cyst of 57/76/70 mm, imprinting the gall bladder;
- segment VI- cysts of 78/55/83 mm, 61/44/47 mm and 65/56/79 mm, the last one protrudes from the contour, subhepatic and posterior of the right kidney, the kidney being displaced anteriorly;
- segment VII- cysts of 78/64/64 mm, 73/58/71 mm imprinting a cyst of 56/82/54 mm in the segment VI-VII.
- spleen with increased dimensions, presents three cystic formations, one at the level of the posterior border, with homogeneous content, round, with dimensions of 76/84/80 mm, one at the level of the anterior border, with polylobate outline and multiple septa on the inside and at least one daughter vesicle on the inside, with dimensions of 106/83/103 mm, another at the level of the lower pole, with bisect appearance, with extracapsular development, with fine septa on the inside, discreetly inhomogeneous content and daughter vesicles on the inside, with dimensions of 89/85/83 mm.
- multiple cystic formations, well delimited, with polylobate outline, some with internal septa and localized daughter vesicles:
 - intraperitoneal, in the iliac fossa and hypogastrium, in contact with the loops of the small intestine and the urinary bladder,

- the largest of 77/50/51 mm, with a bisect appearance;
- intraperitoneal, beside the descending colon, the largest of 46/67/56 mm;
- retroperitoneal, posterior to the ascending colon, of 35/48/58 mm.

The CT scan did not show any abdominal effusion, and no thoracic lesions.



A.



B.

Figure 1. Axial CT view of abdomen showing multiple peritoneal hydatid cysts (A-liver and spleen, B- intra-abdominal).

The patient was on a Albendazole 800 mg/day for 22 days with a pause from the treatment for 14 days before the surgical procedure.

A surgery team was formed from General Surgery to perform in one surgical session the resection of the multiple cysts, by laparotomy. Under general anesthesia, we performed a mid-abdominal incision above and below the

umbilicus. We identified eleven cystic formations with development at the level of the large omentum, which were dissected using classic ligature and also electric dissection. We excised the cysts without incidents (Fig 2).

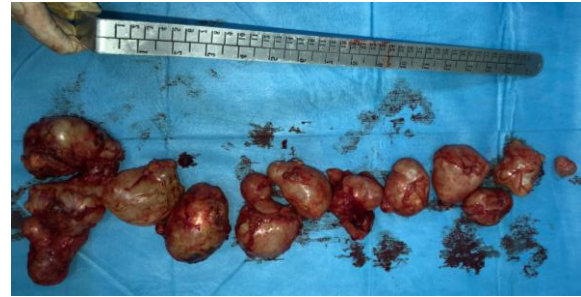
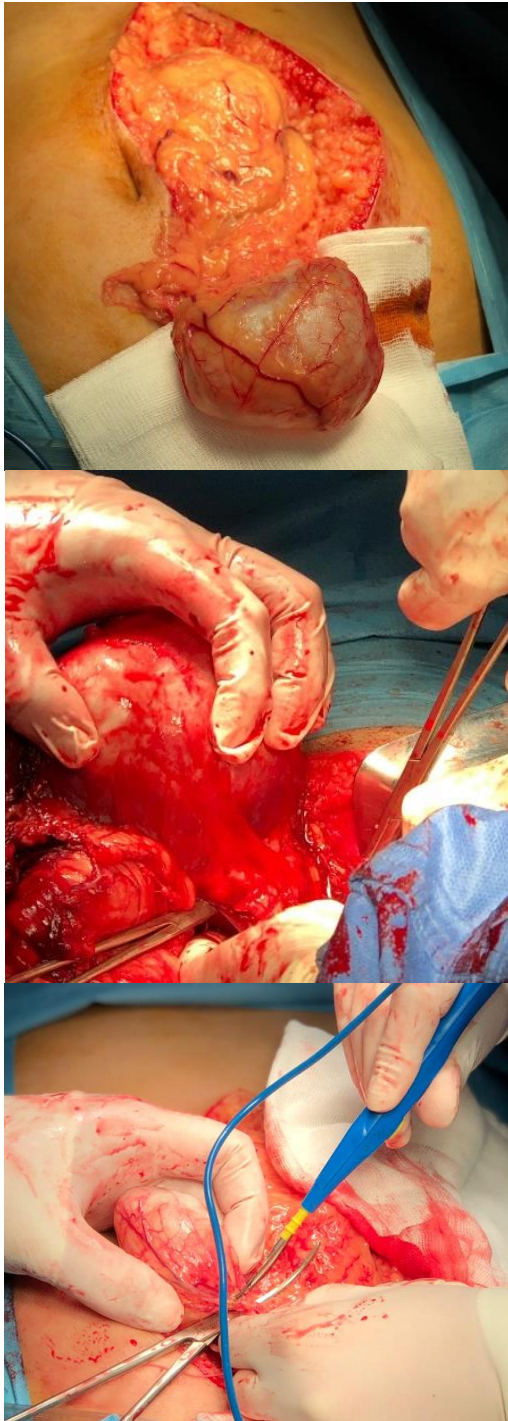
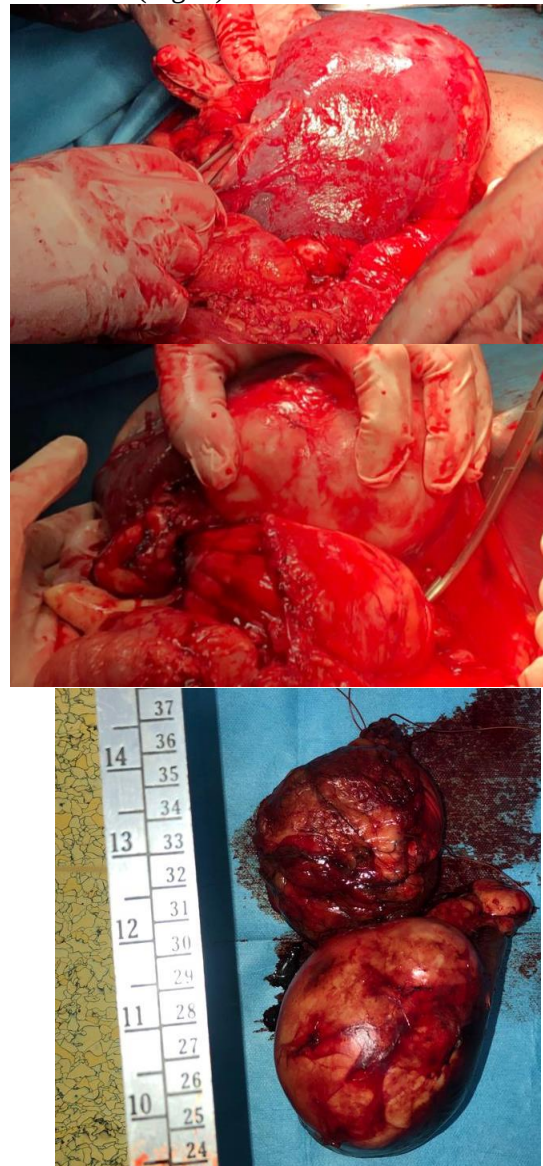


Figure 2. The excision of the intraperitoneal cysts.

For the splenic we performed splenectomy, without any incidents or massive blood loss (Fig. 3).



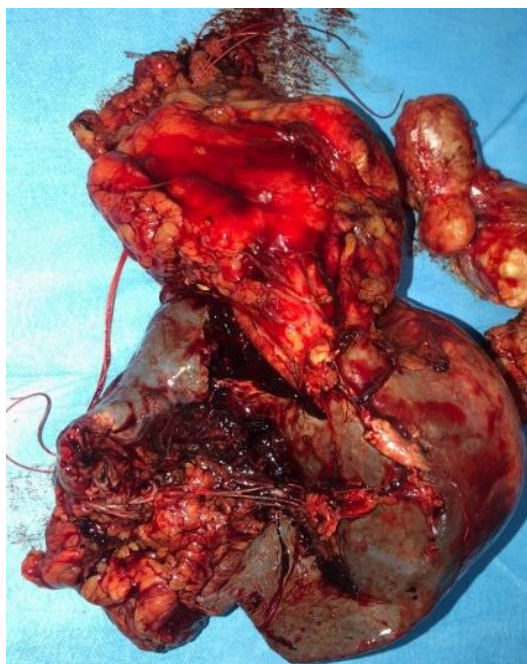


Figure 3. The splenectomy.

For the hepatic cyst we sterilized the content by performing puncture-aspiration-instillation-reaspiration of the cyst and drainage of the residual cavities in the segment VII, and perichistectomy for the lesions in the segment IV and V, also with drainage in the subhepatic region. No biliary extravasation was observed during the surgical intervention. We used as a scolicidal agent hypertonic saline solution 30%. The recovery of the patient was uneventful, with a total of 14 days of hospitalization.

Discussions

Hydatidosis can be primary or secondary, with primary disease occurring accidentally due to ingestion of *E. granulosus* eggs [7]. The rare, primitive form occurs by haematogenic contamination. In the secondary form, 85% of cases, cysts develop due to peritoneal implantation of daughter cysts, caused by acute rupture of primary cysts, surgical intervention, trauma [8]. In case of previous surgery, the contamination is caused by insufficient protection of the operating fields or ineffective scolicidal solution.

Cyst perforation after a low intensity or spontaneous abdominal trauma is favored by the

superficial seat of the cyst, large size, thin wall or high intracystic pressure [9]. *E. granulosus* residing in the intestine of sheep and other herbivores, our patient had a risk factor in the contacting the parasite by working near the intermediate hosts, but did not declare any traumatic episode, he did not have surgical intervention before.

Most intraabdominal hydatid cysts are asymptomatic because they have a slow growing rate [10], despite the extensive abdominal involvement in multiple segments of the liver, spleen, omentum, pelvis and retroperitoneal, the present case had only dull abdominal pain associated with progressive distension.

Diagnosis should be confirmed by radio-imaging studies, abdominal sonography and computed tomography [4]. The investigations could be complemented with serological tests, complement fixation tests, indirect hemagglutination test and ELISA [11, 12].

The main treatment of hydatid cysts is surgical. However, pre- and postoperative courses drug administration (albendazole, mebendazole, praziquantel) is necessary to sterilize the cyst, decrease the chance of anaphylaxis, and to reduce the recurrence risk postoperatively [13,14].

To decide the treatment in case of multiple hydatid cyst it is very important to know the physical condition of the patient and the characteristics of the cysts.

Conclusions

In conclusion, both, hydatid cysts of the liver, spleen and disseminated peritoneal hydatidosis, can persist in one patient at the same time. In this case, we decided that the best choice was the multimodal treatment including drug administration, and careful and complete surgical excision of the cysts. The final goal has to be parasite elimination along with no recurrence and with minimal morbidity and mortality, no matter the treatment chosen.

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Bibliography

1. Mandal S, Mandal MD. Human cystic echinococcosis: epidemiologic, zoonotic, clinical, diagnostic and therapeutic aspects. *Asian Pac J Trop Med*. 2012 Apr;5(4):253-60.
2. Sachar S, Goyal S, Goyal S, Sangwan S. Uncommon locations and presentations of hydatid cyst. *Ann Med Health Sci Res*. 2014 May;4(3):447-52.
3. Mi Beyrouti, R. Beyrouti, I. Abbes, M. Kharrat, M. Ben Amar, F. Frikha, et al., Rupture aigue du kyste hydatique dans le p'ritoine. A propos de 17 observations, *Presse Med*. 33 (6) (2004) 378–384.
4. Woolsey ID, Miller AL. Echinococcus granulosus sensu lato and Echinococcus multilocularis: A review. *Res Vet Sci*. 2021 Mar; 135:517-522.
5. Miron D, Kawar B, Lumelsky D, Spiegel R, Horovitz Y. Encysted peritoneal hydatidosis in a child-the effectiveness of preoperative therapy with a combination of praziquantel and albendazole. *Ann Trop Med Parasitol* 2005; 99: 577-582.
6. Brunetti E, Kern P, Vuitton DA; Writing Panel for the WHO-IWGE. Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans. *Acta Trop*. 2010 Apr;114(1):1-16.
7. Ito A, Nakao M, Lavikainen A, Hoberg E. Cystic echinococcosis: future perspectives of molecular epidemiology. *Acta Trop*. 2017; 165:3–9.
8. Meera M, Vrushali T, Tanaya LK. Primary multiple intraventricular hydatid cysts in a child. *Trop Parasitol*. 2018;8(1):47–9.
9. Dirican A, Yilmaz M, Unal B, Tatli F, Piskin T, Kayaalp C. Ruptured hydatid cysts into the peritoneum: a case series. *Eur J Trauma Emerg Surg* 2010; 36:375—9.
10. Abebe E, Kassa T, Bekele M, Tsehay A. Intra-abdominal hydatid cyst: sociodemographics, clinical profiles, and outcomes of patients operated on at a tertiary hospital in Addis Ababa, Ethiopia. *J Parasitol Res*. 2017; 2017:4837234.
11. Lim JH. Parasitic diseases in the abdomen: imaging findings. *Abdom Imaging*. 2008; 33:130–2.
12. Yang YR, Craig PS, Vuitton DA, Williams GM, Sun T, Liu TX, et al. Serological prevalence of echinococcosis and risk factors for infection among children in rural communities of southern Ningxia, China. *Trop Med Int Health*. 2008; 13:1086–94.
13. Botezatu C, Mastalier B, Patrascu T. Hepatic hydatid cyst - diagnose and treatment algorithm. *J Med Life*. 2018 Jul-Sep;11(3):203-209.
14. Gomez I Gavara C, López-Andújar R, Belda Ibáñez T, Ramia Ángel JM, Moya Herraiz Á, Orbis Castellanos F, Pareja Ibars E, San Juan Rodríguez F. Review of the treatment of liver hydatid cysts. *World J Gastroenterol*. 2015 Jan 7;21(1):124-31.